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The Nature of Sound and Music

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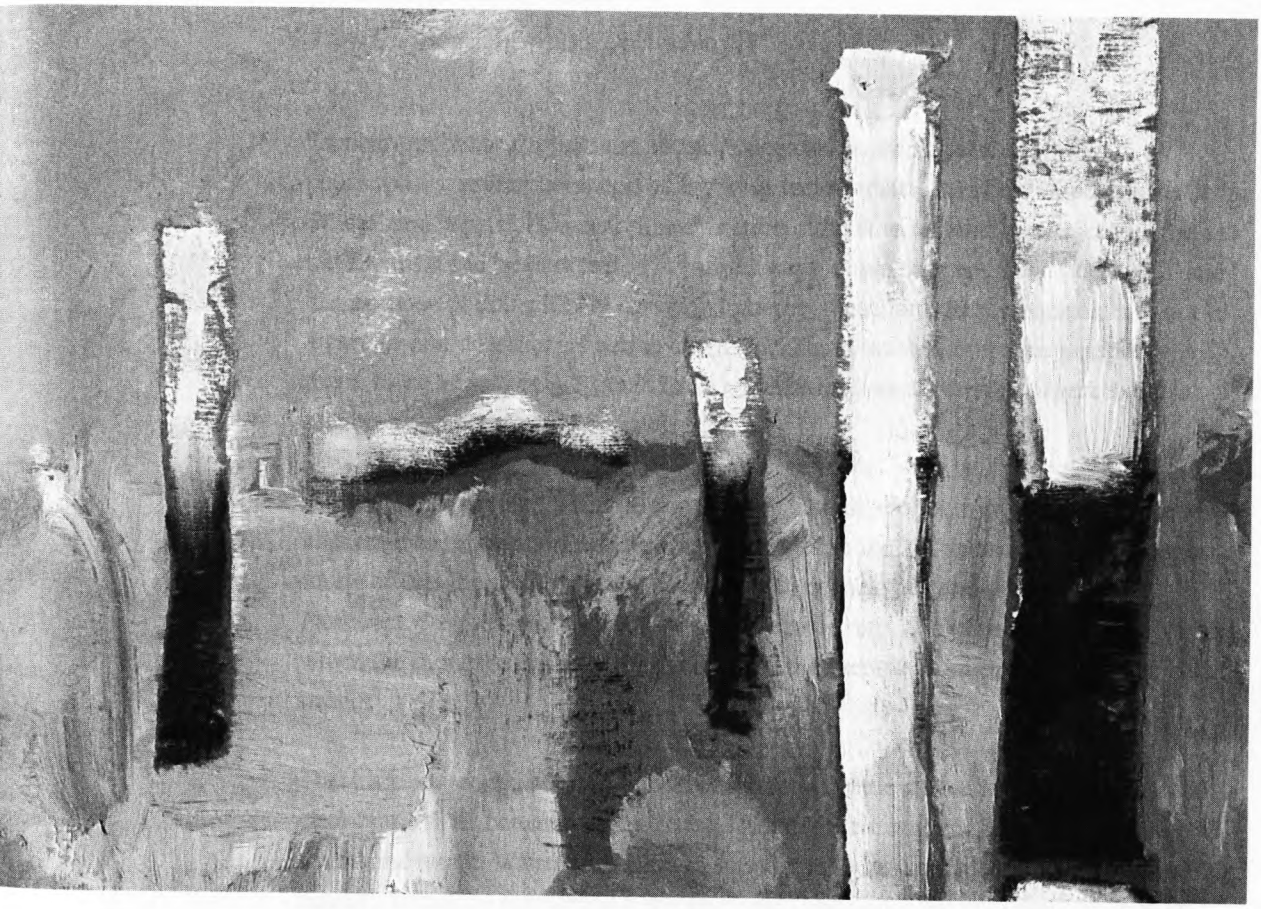


Seung-A Kim

The Nature of Sound and Music

'What is Sound?'

'What is Music?'

'What Makes Sound Music?'

'How Do Music Therapists Define Music?'

Throughout history, musicians, music educators, psychologists, scientists, philosophers, researchers, and others from various disciplines have attempted to define 'sound' and 'music'. However, it seems to be difficult to achieve one agreement on this topic since it can be interpreted in various ways, depending upon 'who defines it' and 'the purpose of doing it'. My intention in raising these introductory questions is not to argue for one definition of sound and music, but to introduce various perspectives of them. More importantly, I would like to discuss how music therapists perceive this matter in a music therapy context.

A music therapist uses music as the primary modality for therapy; therefore, it is very important to be aware of one's personal view of sound and music. His, or her, vision of music affects the music therapy sessions both consciously and unconsciously. Moreover, the therapist's worldview will affect the direction of the therapy, the way in which the therapy session is conducted, and the therapist's interpretation of the client's music.

There are some who regard sound and music with little distinction. Others perceive clear boundaries between them. I would like to differentiate between the meanings of sound and music. When one refers to sound, the focus is usually the perception of sensory stimuli by the human nervous system and brain. We may casually refer to sound as anything that can be heard, or we may look at it as a psycho-physical phenomenon and say that sound is a set of vibrations within a certain range of frequencies (specific to each species) that travels through a medium, such as air or

water, and causes the stimulation of the organism's sensory system, resulting in the event of hearing.

Music, as we shall consider it, is more organized, continuous, and intentional than simply sound. For example, the sound of pouring rain can be regarded as musical and also as a sound experience, but not as music. As I view it, 'music, ' 'musical' and 'sound' have their own meanings. Music entails the idea that the sound is organized in some way into tones that are perceived as a coherent sequence of sounds. Moreover, this organized set of sounds is intended to produce an aesthetic effect on the listener. Furthermore, music usually includes certain elements in its organization and structure that we call rhythm, melody, harmony, tempo, and volume.

On the other hand, with regard to music therapy, any sound that the client makes can be important material. One aspect of the music therapist's function is to help the client use his/her music to move from a state of un-purposefulness to a state of purposefulness. It is the intentional quality of the creation and the performance of music that transforms the output into both expression and communication. This is what transpires in Music Therapy.

What is Sound?

Sound is a form of energy, which is caused by vibration.
— McClellan —

We are surrounded by all kinds of sounds, which we may regard in different ways – soft or loud, pleasant or unpleasant, meaningful or meaningless. However, even when we are not paying close attention to the sounds in our immediate and distant environments, these sounds are providing us with information – the sound of a gentle rain outside, our children's voices off at a distance, etc.

Even before the time of birth, at a time between 4 to 5 months after conception, a baby's hearing apparatus is sufficiently developed that it can begin to perceive sound sensations while still inside mother's womb. Such sounds are the mother's heart beat, gurgling sounds from the mother's digestive system, voices from the mother and others, as well as the sounds of outside music [1]. Thus, the auditory system is active and dealing with sensations before the visual system.

Any sound can hold our attention and elicit responses positively or negatively, depending upon the meaning and value that we attach to the sound. Our individual perceptions and our individual experiences give rise to a sense of meaning that we attach to certain sounds. For example, a dazzling rainy sound can be pleasant for a teenager who likes rain. On the other hand, a woman who suffers from severe arthritis might not appreciate the rainy sound. In both cases the sound stimulus may be the same – listening to the same rainstorm. However, it is doubtful that this stimulus will elicit the same response from both individuals, based upon the value and meaning which they individually attach to the sound.

More broadly, most of what we perceive within the sound spectrum is not simply raw sensory stimulation. In most cases, we attach a meaning and/or value to what we hear. Meaning is what associative thought processes we attach when we hear the sounds of a baby crying, or a fire alarm, or gentle waves at the beach – the baby's distress, the danger of a fire, the rhythmic flow of the ocean. Value is what we subjectively feel about the meaning that we have just perceived – concern for the baby's safety or hunger, or distress at another night's interrupted sleep; fear of getting injured by the fire, or anger that someone initiated a fire drill in such cold weather; a feeling of relaxation, calm and well-being, induced by the repetitive rhythm and sound of the waves.

Music is based in sound. The experience of music begins with sensory stimulation, and the perception of that sensory stimulation. However, it extends far beyond mere

sensory input; it also involves the meaning and value that we attach to that experience. Ultimately, it comes to draw upon the whole of our personality and preferences, our personal experience, and the context and background of our society and culture, our age-group, and the effects of various factors that are at play at the particular point in history at which we are listening to the music. Nonetheless, to understand the nature of both sound and music, we need to begin by examining the physical nature of sound.

What is the Nature of Sound?

There are two basic ways in which sound can be understood:

a) as a physical event,

b) as an event of sensation and perception.

Over time, it has become a point of college humor that students of introductory philosophy courses must wrestle with the ages-old question: If a tree falls in the forest, and no one is present to hear the crash, is there any 'sound?' While not attempting to offer a definitive answer to that philosophical proposition, we suggest that one approach is to understand sound from the perspective of physics. Whether or not there is any perception of the event by any living organism, there is a physical event that is called sound. From the point of view of physics, there are certain physical phenomena that constitute the physical event that we call sound.

Sound originates with movement. When anything moves, it disrupts the molecules of whatever is around it. As for us, we live in a sea of air. And when anything moves, it creates a brief disruption in the air molecules surrounding it. This disruption consists of minute variations in the air-pressure that radiate outward in all directions, like ever-growing spheres. We call these physical phenomenon sound waves. It is analogous to the ripples that occur with the 2 dimensional surface of calm water when it is disrupted by a stone being dropped into it. As for sound waves traveling through air, it is a 3-dimensional phenomenon. As the sound waves ripple outward, there is a very rapid

expansion and contraction of the air pressure. When these sound waves reach the ear – the sensing apparatus of a listener – they continue to rapidly expand and contract as they travel into the ear, causing movement in the structures of the ear. The changes that occur in the structures of the ear eventually trigger the parts of the ear called auditory receptors, which are specifically designed to detect sound waves. In turn, the receptors initiate signals in the nerves which are carried to the brain. It is the brain which decodes the signal, ultimately resulting in the experience of hearing sound, or audition. Detecting the sound waves and sending the appropriate signal to the brain is defined as sensation. When the brain decodes the signal, the person experiences the sound that is referred to as perception.

Although we usually think of sound as something that occurs in air, this is not necessarily true. The rippling waves of expanding and contracting pressure can also take place in many other mediums. Water, for example, conducts sound waves 5 times faster than air. This accounts for the reported phenomenon that certain ocean dwellers, such as whales, can communicate across hundreds of miles by transmitting sound signals.

Moreover, we live in an environment that is saturated by sound, much of which we are not aware. Even when we think that we are in a situation where we cannot perceive any sound, we are flooded by the subliminal perception of sound. That is, we cannot consciously detect any sound. However, when persons are placed in 'sound-proof' rooms, they report the enormous difference in their experience of silence – 'no sound'. In fact, genuine silence can only be experienced in an environment where there is nothing to expand and contract – a vacuum. Persons who have experienced a relative vacuum (one cannot be placed in a perfect vacuum), report that the silence is actually painful.

There are 3 important physical characteristics to sound waves: frequency, amplitude, and wavelength [2]. Frequency is a measure of how often a sound wave goes through

one cycle in a specified period of time. Usually, the most useful measure is how often the particular sound wave goes through a complete cycle in 1 second. Wavelength is related to frequency – it is inversely proportional to the frequency. Frequency is the time interval between two peaks of the sine wave of the sound wave. Amplitude is a measure of the size of the change in pressure created by the sound wave.

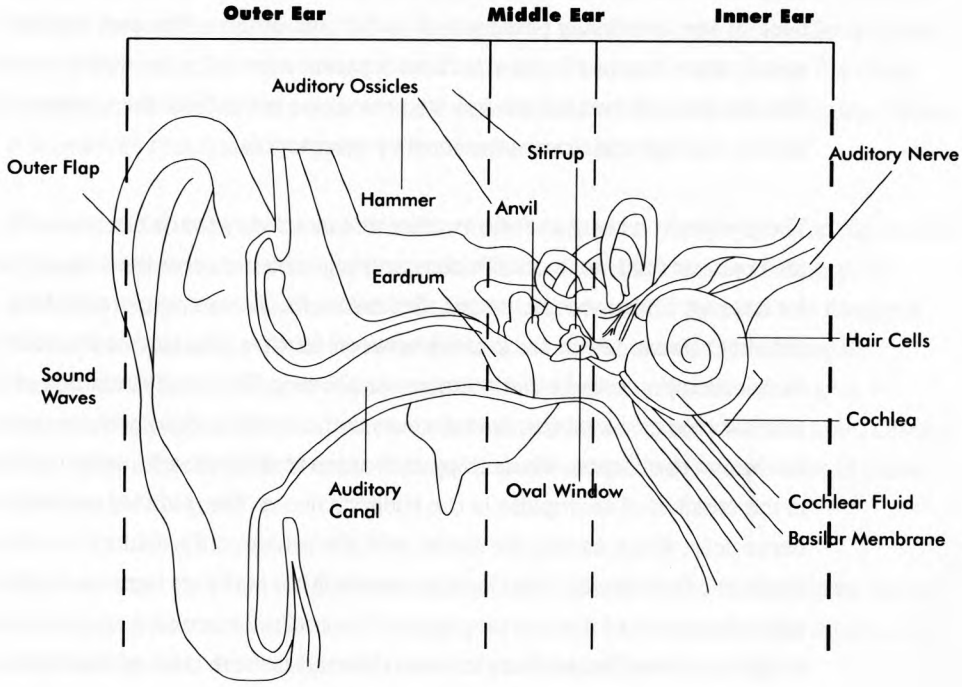
These physical aspects of sound have importance beyond the physics of the event. That is, the dimension of amplitude is approximately equivalent to the perceptual/psychological experience of loudness, when hearing the sound. Frequency is approximately equivalent to the perceptual/psychological experience of pitch. There is a great range of amplitudes over which humans can detect sound. For easier reference, a logarithmic scale has been constructed for this purpose, and its units of measurement are termed decibels (dB). Perceptual experiments have determined that a person subjectively perceives a doubling in the loudness of a sound whenever the intensity of that sound increases by 10 decibels. The frequency of a sound wave is usually measured in cycles per second – this unit of measurement is called one hertz (Hz). As a rule of thumb, the range of human hearing is considered to span a low of 20 hertz to a high of 23.000 hertz. This would most often be found in a young and completely healthy person. With age, this range of human hearing tends to diminish. The lower the number of hertz of a sound's frequency, the lower that tone sounds. The higher the number of hertz of a sound's frequency, the higher the tone [3].

What is the Nature of Hearing?

Hearing, as a process, involves both the *sensation* and *perception* of the *auditory system*, as well as the input of *psychological mediation*, which attaches a *meaning* and *value* to that which is perceived. The hearing process involves many tiny anatomical structures that are part of the ear, which function to collect sound waves and progressively channel them to the most important, auditory structure, called the cochlea, where sensation of the sound waves occurs. This sensory information is

passed on to the auditory nerve, which conducts the signal to the appropriate parts of the brain, where the signal is decoded and the experience of perceived hearing is crystallized.

STRUCTURE OF THE EAR



Collection of the sound waves is accomplished by the outer ear, which funnels the sound waves through a tube-like part of the ear called the auditory canal, until they reach the eardrum. The eardrum is named that, because it consists of a membrane that is reminiscent of a drumhead, which is 'struck' by the sound waves, resulting in vibration similar to that of a drum-vibrating in sequence with the sound waves. This membrane – the eardrum – is the physical separation between the outer ear and the

middle ear. Within the middle ear are three tiny bones – the smallest bones in the human body – called the hammer, the anvil and the stirrup. Together, these three bones are known as the auditory ossicles. The function of these three bones is to increase the pressure on the principal sensory structure of the ear, the cochlea. They accomplish this by taking the vibration from the eardrum, and then vibrating in sequence, with each one passing on the vibration that began at the eardrum to the next bone in line, and finally passing it on to the oval window. The oval window is another membrane – this one is the structural separation between the middle ear and inner ear. The vibration of the oval window triggers waves in the fluid, the cochlear fluid, which fills the cochlea and houses the sensory receptors [4].

The cochlea is a bony, coiled structure that looks very much like a snail. It is filled with the cochlear fluid, and contains the receptors which receive the sensory information for hearing. These receptors are called hair cells. There are approximately 15.000 hair cells in each ear, which are located between another structure of the cochlea called the basilar membrane and other membranes above it. Thus, the vibrations of the oval window creates pressure-induced waves in the cochlear fluid, which creates changes in the basilar membrane, which triggers changes in the hair cells, which ultimately results in the creation of an impulse in the auditory nerve. The auditory nerve is a bundle of nerve cells, which carries the signal, with the sensory information, to various parts of the brain. The specific brain location to which the auditory signal is delivered depends upon the nature of that sensory signal. Eventually the sensory signal is taken to the auditory cortex. The auditory cortex is located on both sides of the brain, in the left and right temporal cortex.

This complex scheme is the basis of our understanding of the processes of auditory sensation and perception, and the experience of hearing. However, even now there is some degree of uncertainty about the way that the structures of the ear manage to communicate information about the sounds they detect. Most of these questions have to do with the sensation of pitch – how high or low is any given tone. There are two

theories, which at one time were considered to be in competition with each other. Today, most scientists consider each one to be a partial answer, as they both contribute to the overall picture. The Basilar Place Theory of Pitch was initially propounded by Hermann von Helmholtz, one of the true pioneers in the field of psychology. His idea was that different locations – 'places' – on the basilar membrane responded to different sound frequencies. In this way, the basilar membrane, he stated, detected the varying frequencies of sound. Today, it is believed that this is true for middle and high frequency tones. The other theory, the Frequency Theory of Pitch, is that the entire basilar membrane vibrates at the same frequency as the tone that it is detecting. Today, it is believed that this only applies to low-frequency tones [5].

There is one additional characteristic of sound, which particularly applies to the sounds of music, which we have not yet discussed. This is the characteristic of timbre. In analyzing sound, there are qualities that are not accounted for by pitch and loudness. Certain sounds are produced by a narrow band of sound waves. Others may be comprised of many different sound waves, which vary to only a minute degree – sounds of this type are often perceived as having a 'richer' quality to their tone. Often it is the characteristic of timbre that distinguishes an exceptional performance of music from one that is good.

Thus, we have reviewed the fundamental nature of sound. We have considered sound as a physical phenomenon, as well as a phenomenon of sensation and perception. In the following text, we consider the nature of sound as music.

What is Music?

Music is the actualization of the possibility of any sound whatever to present some human being a meaning which he experiences with his body — that is to say, with his mind, his feelings, his senses, his will, and his metabolism. Music is what I am when I experience it.
— Thomas Clifton —

Music is everywhere in our daily lives – not only at the concert hall, but also in shows and commercials on TV, on the radio, in the movies, at parties, at the gym or spa, at school, and at home. Can we imagine the world without music?

Why and how music is meaningful to human beings, and why music is such a powerful experience

Music has multi-dimensional energy, which moves us holistically – mind, body, and even spirit. When we listen to music, our body often starts to move, our mind is drawn into the music, and sometimes we are deeply touched spiritually. In ancient Greece, music was seen as part of human nature: rhythm – the body, our physical nature; melody – our psychological, emotional, and mental nature; harmony – the totality of our physical and spiritual existence. Music seems to have a special quality that people are drawn to, naturally and instinctively. For instance, stimulating music or relaxing music would bring out different results in lowering or increasing heart rate, blood pressure and anxiety level. Music affects us physically, emotionally, and psychologically.

How is this possible? It is because we are all musical beings. All human beings are born with an innate sensitivity to tone and rhythm [6]: 'Music moves us because we move in a musical way – rhythmically, harmoniously, with gestures modulated in intensity,

weight and resonance. Our rhythmical acts are linked in sequences that can be read as narratives or melodies. We are born like this' [7].

Our body is a perfect musical instrument, as we may hear in the human voice. In addition, our physical body is filled with many rhythms that are physically, physiologically, and psychologically based. For example, the beating of our heart, the inhalation and exhalation of our breathing, the pattern of our waking and sleeping, and our schedules for living our life all have rhythms. This contributes to why we are all naturally responsive to music.

In addition, *music is a universal phenomenon.* Historically, music has been a part of every culture that is known to have existed, even the most primitive. One of the reasons that music is universal can be found in musical structure: we all use musical elements — melody, rhythm, and harmony. Moreover, music is an important part of our lives, whether we are aware of it or not. Regardless of age and cultural background, people play and enjoy music daily.

These two premises that are described above — that *we are all musical beings*, and that *music is a universal phenomenon* — are very important in the practice of music therapy. This is why music affects us, and why music therapy can work for us. Additionally, this is why our clients do not need to have previous musical training in order to get the benefit of music therapy.

Identifying the nature of music can be varied because *music phenomena are extremely complex.* As Nattiez noted, 'Music consists of various dimensions, including the process of creating music and the process of receiving it and reconstructing it in our minds, as well as the analyzing of it, of its structure and forms' [8]. Therefore, I will introduce a variety of perspectives on the nature of music, and the relationship of music and music therapy.

Tones

One single tone might not be considered 'music'. A sense of purposefulness and organization and continuity is needed in order for a series of tones to be called 'music'. Zuckerkandl [9] characterizes tones as a moving force in music: people usually think that rhythm is the musical element that moves us physically, but, in fact, melodies also can be the musical focal point that moves us.

When an individual listens attentively and deeply to music, the person can become aware of his/her physical, physiological, emotional, and psychological responses. From my experience, I believe that the rhythm of the music leads more to the listener's physical response, whereas the tones lead more to the psychological states. Moreover, I believe that both rhythm and tone affect our physiological states. However, these distinctions are not absolute – there is overlap between them.

Rhythm is usually the driving, fundamental musical factor, which provides the basic foundation of the listener's experience. Depending upon the particular music, this is often experienced in a direct physical way – for example, when the music 'makes me want to move', or when the music is quiet and serene and languid in its movement. Alternatively, some persons describe their experience of tone as the tones 'coming through their body' or 'saturating their physical body'.

Tone and the related tonal expressions, such as melody and harmony, seem to affect individuals more psychologically. Typically, the listener engages in cognitive and emotional interpretations of tones that are not applied to rhythm.

Moreover, both rhythm and tone affect physiological status – such as heart rate, blood pressure, adrenalin release during exciting music, and perhaps, endorphin release during quiet, pastoral music, or during serene music such as Gregorian Chants or Haendel's Halleluiah Chorus.

The 'living' nature of music can be glimpsed by looking at a musical score with all the notations of dynamics removed. Looking at the score is merely viewing the graphic, symbolic representation of a succession of notes. Even if music is written on the paper, it still has, or needs, dynamics – and without this dynamic quality, the music is lifeless. On the other hand, consider any piece of music played without any variation in volume or tempo or musical emphasis – that is, the same notes, but played in a monotone fashion. The most important aspect of music is in the moment, as it is being created and as it is being listened to. Music that is being played is 'living', music on a page is 'dormant' [10].

When a person hears a tone, or a series of tones, there is a living quality to that musical experience. Music that is heard, and therefore experienced, is not simply a static representation of music, such as music written on a page, or even the static status of music that has been recorded but is sitting on a shelf. Additionally, tones have meaning when they are expressed by performers. For many musicians, it does not matter whether the performers perform the piece exactly as the composer was intending. In fact, it may be that no one can possibly express music exactly as the composer 'hears' it in his/her mind. The piece of music can be alive and have meaning only when someone performs it and someone listens to it, even if it is just the performer who is listening.

Furthermore, even the same piece of music will be performed differently by the same individual, depending upon the performers' connotation and interpretation of the music, as well as the performer's psychological, emotional, and even physical status of the moment.

Music as an Organizer

Some might think that music is a sensory stimulation, organized by structural qualities such as pitch, dynamics, tempos, timbre, and harmony. Although it is true that music is

a direct, immediate experience, which requires no translation to be understood – 'it is what it is' – it is also true that music is more than simply raw sensory perception. The sensory stimulus is processed by the cognitive and emotional faculties of the listener. These, in turn, are modified by both experience and learning.

It is organization that makes 'sound' into 'music'. This organization comes either from rhythm, sequencing in the tones, or both. Additionally, it may come from tempo or dynamics, or an overall 'mood. ' The structural quality of music acts as an important factor in drawing the listener into the experience of the music. There is really no music that is truly free of form – including the most spontaneous and improvisational of musical creations.

The aspect of organization in music has a significant meaning in music therapy. For instance, when working with clients who have cognitive limitations, music can be a medium for them to move from their state of disorientation to a state of greater orientation. In this case, one can visibly observe their facial expressions and behavior change from a lack of purposefulness to apparent purposefulness.

What is the Nature of the Experience of Music?

Among music educators and philosophers, there are 6 principal theories regarding the nature of the experience of listening to music: Absolutist, Referentialist, Expressionist, Cognitivist, Emotivist, and Formalist Theories [11,12]. There is considerable overlap among them.

The *Absolutists* believe that the meaning of music is embedded in the music itself – that this meaning is absolute and invariant – not subjective and individual. It is conducted by unique musical laws. The *Referentialists* believe the opposite: the meaning and the experience of music comes from within the listener, as it triggers references or associations to the listener's past experience. The music activates or

triggers cognitive and/or emotional references within the listener. Therefore, according to this point of view, music can have many meanings and can be experienced in many ways, depending upon the listener. Thus, the experience of music is subjective and personal, not absolute, and it varies from listener to listener. The idea of being referential encompasses both personal and cultural contexts. Moreover, music is affected by society, as well as by the time in history. At the same time, music can exert a powerful influence in shaping or creating culture.

Expressionists take a position between these two theories. They believe that music is primarily the expression of its creator's thoughts and feelings. Therefore, the meaning of music derives from the thoughts and emotions of the person who creates the music. The composer is the principal source of the meaning of the music, because in creating the music, the composer engages in an act of self-expression. On the other hand, the *Cognitivists* believe that music is only an intellectual stimulation, and that music does not make you feel something. They believe that ideas of the composer are connoted in the music. In turn, the music activates the listener's cognitive structures, which then forms the basis of the listener's experience.

The *Emotivists* believe that the experience of music derives its meaning from the listener's emotions. Music arouses an emotional state within the listener by triggering feelings or memories or associations within the listener. The Formalists agree with the Emotivists that the meaning of music does not primarily come from the composer, but rather from the individual listener. However, while the Emotivists believe that what is triggered is primarily emotional, the Formalists believe that what is triggered is primarily intellectual.

In music therapy, the client's musical experience can be understood within the Expressionist/Referentialist point of view. That is, they experience the music, which they produce during sessions as the expressions of their own thoughts and feelings. For the client, as a composer, 'his experience is inside him; in order to make it available to

others he must externalize it; and by expressing it he hopes to pass it on to others' [13]. Amidst the theoretical discussions of music and the experience of music, this is a critically important point for music therapy. Namely, if the client did not experience music which he, or she, produces as the expression of his, or her, own thoughts and feelings — his, or her, own inner state — why should the client engage in music making during music therapy sessions at all?

However, the process of music therapy can also be understood from the Absolutist theory. Here, the idea is that the mechanism of therapy is the nature of music, itself. The meaning and the experience of music, as well as the healing force of the music, comes from the music itself.

Moreover, including both the Absolutist and Referentialist positions, Pavlicevic proposes 'clinical-interactive meaning' as an inclusive and unique way of understanding of music therapy phenomena [14]. By its intrinsic nature, music is dynamic, not static, and it involves a relationship between the creator and the listener. This is true even if the listener is the creator of the music at the time of actively creating it. This directly relates to the status of both the client and the therapist during a music therapy session. In fact, that situation additionally involves their relationship to each other, and their relationship to the music that the other is creating.

Why Do People Listen to Music?

Interestingly, Hindemith [15] points out that a person cannot change emotional states as quickly as music changes its expression. Even if this is true, it does not necessarily mean that the listener is not experiencing emotions musically expressed by the composer while listening. From one point of view, it may seem strange for a listener to derive pleasure from listening to music that triggers the experience of painful, sorrowful, or other 'negative' emotions. Nonetheless, it is my belief that this is a part of the nature of human beings. That is, we are drawn to the experience of the full range of

human emotions in our aesthetic and creative experiences. This is why all forms of art are filled with all of the human emotions, including: grief, sadness, anger, hatred, violence, fear and jealousy, as well as love, reverence and transcendence. This may be particularly true of the written forms of art – novels, plays, and poetry. Music, as the most effective vehicle of the expression of emotion, should naturally be able to do the same, and should be 'enjoyed' for doing the same.

In addition, Levinson discusses three conditions, which affect our experience of emotions while listening to music: familiarity with the music, aesthetic attitude, and emotional openness to the content of music [16]. Levinson describes 'emotional openness' as having an 'empathetic or mirroring nature' while listening. The composer expresses his feelings through music and the 'sympathetic listener' experiences it. This makes sense to me, especially within the context of music therapy. A client may express very intense, painful emotions during a session, and the therapist, as a 'sympathetic listener', shares that music and shares that emotion.

Why Do People Play Music?

We may approach the ideas of music, its experience, and its meaning from a different perspective. Elliott, a music educator, views music as 'a matter of artistic-cultural actions and performance'. He points out that when someone studies the playing of a musical instrument, he, or she, is primarily motivated by the experience of 'making' music [17].

Music, whatever its form, is experienced in a person's consciousness. Individual consciousness is involved in a person's awareness, thinking – including practical and abstract reasoning, judgment, problem solving and decision-making – emotions, sensation and perception, knowing, enjoyment, and overall functioning at both conscious and unconscious levels. More broadly, individual consciousness is an integral aspect of human development and functioning during our lives. Elliott argues that when

a person makes music, and when a person is listening to music, that something takes place within human consciousness that results in a greater degree of order within that consciousness. This is a unique characteristic of human consciousness. Moreover, he asserts that this is an essential way by which humans can develop. This ordering of consciousness involves the further growth of the individual, and an increased knowledge of oneself.

The creation of music, both playing and composing, and listening to music may be viewed as the outgrowth of the nature of human consciousness. From this point of view, we may say that we have an innate tendency to create music and an innate tendency to derive a sense of enjoyment from listening to it.

Most persons who play music, and those who listen to it, find both activities pleasurable, or psychologically rewarding. At its highest levels, both the creation of music and the listening experience can be a 'peak experience' of human consciousness.

Bronowski believes that '...the most powerful drive in the ascent of man is his pleasure in his own skill. He loves to do what he does well, and having done it well, he loves to do it better' [18]. This idea is to be found in much of Piaget's theories of human cognitive development. Thus, the subjective cognitive feelings of competency and mastery accompany cognitive and performance-based growth. At the same time, there is the affective experience of enjoyment. These aspects of music and human functioning are fundamental to the process of music therapy. More specifically, as one experiences enjoyment, satisfaction or accomplishment as the concomitant of self-growth within therapy, one is reinforced for the continued pursuit of therapeutic growth. The operation of consciousness does not necessarily involve verbal process. Piaget states that the same logic applies to both verbal, cognitive processes and to non-verbal action/performance-based processes. Thus, this supports the idea that music can be an effective therapy medium for people who are cognitively limited, non-verbal clients. This is due to the fact that they channel their actions into the rudimentary

playing of musical instruments and express their response to music through physical and vocal action.

Music as Process

Using music in therapy can be understood from the ancient Greek perspective that music is *not a product but a process.* It is my belief that this conceptualization is more useful than the aesthetic concept of music as a 'work' in the eighteenth century. In a clinical situation, if we understand music only as a work, a creation, how can we explain musical improvisation that the client may chose to do, sounds which are not always 'beautiful?' 'Sometimes, clients engage in an exploratory, playful process rather than an artistic, creative process, and sometimes the results are 'sound forms' rather than 'music' [19].

In discussing the aesthetic experience in art, we have to be aware of the differences between varying kinds of art. Aesthetic experience in music is fundamentally different from the aesthetic experience in paintings or novels. Once a painting is painted – once a sculpture is sculpted – once a novel is written – it remains as it is forever. However, once music is composed, it is subject to a new interpretation and a new re-creation every time that it is performed. Additionally, music is something that is experienced in the moment. Once the moment has passed, it can never be recaptured. Moreover, music that is improvised is even more ephemeral than music of which there is a written record, or a sound recording. In fact, if an improvisation is recorded, it changes fundamentally in its nature. No longer is that improvisation free and spontaneous with all possibilities still open. Now it is fixed forever.

Music as Communication

Some note that music is a means of communication of thoughts, moods, feelings, and emotions. Langer asserts that music can express what language cannot: 'Music is

revealing, where words are obscuring, because it can have not only a content, but a transient play of contents. It can articulate feelings without becoming wedded to them' [20]. This is because the forms of music according to Langer, are closer to the forms of feelings than to the forms of language.

In a music therapy setting, we need to understand the meaning of music in the context of the relationship between the client and the therapist. In this situation, each person listens to the other. Whatever the character of the musical communication – the self-expression of moods and emotions that one has lived through, the evocation of feelings, the musical expression of thoughts – within the music therapy setting, it is a 'co-creation' of the client and the therapist.

Pavlicevic describes this phenomenon as '*the interpersonal nature of the musical act kursywa*' [21]. The music produced during music therapy is a 'mutual creation' that also entails the creation of 'shared meaning'. The two individuals do this by organizing sounds through their private interaction in therapy. Part of this process involves each the listening to one and other, as well as the 'assigning of meaning' to what they hear. When two persons share the music that they are playing, and the subsequent experience that they are having, it is inevitable that they will affect each other in the music.

It is my perspective that the meaning of music derives primarily from the individual who originates it. Thus, although music has the power to evoke feelings, thoughts, memories and spontaneous experiences within the listener, the fundamental emotional quality of the given piece of music originates from within the person who creates it. The creator of the music is expressing his, or her, thoughts and feelings. Without this, music therapy would have no meaning, or rather, a very different meaning.

One of the goals of music therapy is to encourage and support the client in expressing his, or her, thoughts and feelings in the form of music. Thus, it is the client who

intentionally gives his, or her, musical ideas their meaning. The music therapist can respond in many ways by providing support, critique, or an alternative direction, etc. By doing this, the therapist establishes a process of collaboration that focuses on the client, the client's music, and the meaning expressed by the client's music.

Thus, within the music therapy setting, the 'dual nature' of music is clearly seen – both individuals, or the group of individuals, who are engaged in the music therapy become 'co-creators' – expressing their own thoughts and feelings, experiencing the thoughts and feelings triggered in them by the others making music, while simultaneously finding a 'joint voice' in the music. Additionally, it is when the music therapist 'genuinely and attentively listens' to the music of the client, and then sensitively responds to that expression/communication, that therapy takes place.

Music as an Expression of Self

Music expresses the individual Self, one's Culture, and one's Life as a whole.

Ethnomusicology shifts the focus from that of the theories that we have looked at so far. Instead of considering the individuals involved in the music process – the composer or the performer of the music, and the listener and/or the person who responds to another's musical initiative – as though they exist in isolation, the ethnomusicology perspective emphasizes considering each one within his/her social and cultural context. There are many aspects to these influences.

I believe that music can be used to express a state of being–who we are, and where we come from. Music can express aspects of our Self, and it can express aspects of our Life and how we live it. According to Ruud, music expresses 'the way we look at and present ourselves' [22]. For instance, many teenagers are drawn to rock & roll music, rap music, or reggae, as a part of their unconscious search for their sense of personal

and group identity. At times, music can be used to express socially or politically unacceptable ideas. At other times, there may be emotions that words cannot express.

Each style of music carries with it a particular framework of reference, just as each individual's life style is unique. Consider various musical forms which have been the expression of regional or ethnic or age groups here in America: country music, western music, jazz, rap, rock music, swing music, classical music, gospel music, American Indian music, etc. In each case, these forms of music are the expression of what the *individuals* comprising the group resonate towards. We each have our own preferences in music, and this often depends upon the culture to which we belong. A person who belongs to a classical music culture might be resistant to other types of music, unless this person is open-minded to other types of music, of course. Nonetheless, musical preference is a product of both individual preferences and cultural learning.

On the other hand, when we listen to the music from outside of our culture for the first time, it is possible that we might not appreciate it because of not being accustomed to listening to that particular type of music. 'An interesting exercise for one who hears a melody from a musical tradition not of his own is to attempt to reproduce it. The greater his musical training, the less he will succeed; for, quite unconsciously he will translate it into his own idiom' [23].

Shiraev and Levy [24] note that sensory differences across cultures are insignificant. However, our aesthetic perception is significantly influenced by our cultural orientations and experiences. For example, the perception of beauty can vary depending upon how we have been shaped in our perceptions through acculturation. Even within a given culture these standards can vary enormously over time, and as it does, individual perception is shaped by the group cultural standards. As an example, within this past century there have been several radically different models of ideal physical beauty in the United States. And, as the cultural ideal varied, the perception of the vast majority of individuals varied accordingly. When considering the differences

and variations across cultures regarding music, the effect of culture on individual perceptions is even greater. Therefore, our musical choice can be very personal and unique.

However, how do we meet the unique musical culture of our client that might not be in accord with our own preference in music, as we conduct music therapy?

The music therapist should be aware of his, or her, own musical culture and how it influences the conduct of sessions, because the meaning of music playing in music therapy is that 'it is not the therapist, a trained musician, playing beautiful music for the client, but both struggling with rhythm and non-rhythm, loud sounds and soft sounds, fast sounds and slow sounds. The music therapist is there to help clients develop their own sounds – sounds that are satisfying to them and work for them in their own world' [25].

Music as a Social Agent — Social Gathering

Music provides a social space where we explore ourselves relating to ourselves, and relating to each other. Furthermore, music can create an environment that transcends time and space. Within this realm of the social space, clients have an opportunity to explore their relationships with others in their group.

Ruud well illustrates in his article how music is used to connect one unique individual to another unique individual, and the benefit that the individual can derive from this: 'From my interviews, it was often demonstrated how music became an entrance ticket to a social group, to experience communality and attachments to others. 'Being with others' through music may thus provide intense experiences of involvement, a heightened feeling of being included, of a deep relation with others. Through the intimate frame given by musical activity, individuals are bound together through common musical experiences' [26].

Stephens identifies three aspects of relatedness, which can occur during music improvisation: a sense of self, an awareness of others, an ability to communicate [27]. Each of these aspects of relatedness is fostered in music therapy, she believes, as the therapist and client continually operate on two levels simultaneously – the actual and the symbolic. The actual level refers to all those expressions of self, which the music represents. The symbolic level refers to the thoughts, feelings, memories, and sense of communion between therapist and client, as well as the joy and excitement of making music with another.

When we play music together in a group, it seems that we are able to bond with each other at a deep level. It might be because the magical aspect of music facilitates the almost instant formation of alliance between us, because our individual connection to music already exists. It carries with it the feeling of being related, as though we are somehow members of a 'musical family'. We all share the secret that most persons who are not directly involved in music do not know - the enchantment, the transforming power, the inherent transcendence of music - for all humans.

Music as Spirit

Music can be seen as another form of spirit. According to the Pythagoreans, 'the planets vibrate in the same frequencies and proportions as audible music' [28]. Therefore, from their perspective, organizing musical notes and harmonies is closely related to ordering cosmic elements in the universe. This theory is echoed in modern quantum physics. There is now a greater understanding of the laws by which the universe operates. Nevertheless, there are many who still believe that music follows these universal laws.

Music is 'like water, it adapts itself instantly to the shape of its container. In a square vessel, it is square; in a circular vessel, it is circular. This is true because of the nature of the element itself ... ' [29] Music can be mysterious, hard to describe in words.

Many persons have an intuitive belief that music resonates with some deep fundamental part of our nature as human beings. It seems to touch, reflect, and express some essence of our inner selves. As such, it may be regarded as transcending its physical attributes. There are many who regard music as an expression or a form of 'spirit'.

Music in Music Therapy

Music, and its use, are at the heart of music therapy, which is a unique form of therapy. At the same time, understanding human psychology is an integral aspect of conducting music therapy.

Bruscia introduces a comprehensive definition of 'music': 'Music can be defined as the art of temporally organizing sounds and its various physical and experiential components, for the purpose of creating and interpreting expressive forms that reenact, elaborate, or bring meaning to the human life experience' [30]. Further, he proposes that to define music in a therapeutic setting, one needs to include priorities of therapy, a nonjudgmental perspective toward the client and the music, multi-sensory applications, and related arts modalities.

It is my perspective on music and music therapy that they are, or should be, inclusive in their nature. I view the many phenomena of music from various angles. Within the music therapy context, I believe that how and to what degree we take a position about the meaning of music and music therapy itself derives from our clients to a great extent. In my clinical work with an adult developmentally delayed population, a critical feature of the music therapy is their experience of their own unique emotional reactions to any music that is being played or created at the particular moment. I often think about what is really important for them in their lives at that present time. In addition, I have come to believe that what is most important for these clients is their

emotional life. Moreover, this perspective helps me set a direction for the therapy and for the goals that the clients will work on in the therapy.

As Elliott asserts, the meaning of music lies within *the domains of consciousness, self-growth and enjoyment.* I believe that these aspects of music and human functioning are fundamental to the process of music therapy. Namely, as one experiences enjoyment or satisfaction or accomplishment as the concomitant of self-growth within therapy, one is reinforced for the continued pursuit of therapeutic growth.

Through my study – and through my experience in life – I have come to the understanding that music is a universal aspect of all human individuals and all human cultures, and it takes a specific form and expression in each particular culture. Therefore, music is a way of *both expressing one's culture and transcending one's own culture. Further, it is the medium of creating a new culture in the music therapy context – no boundary, no judgment – just two persons connecting as human beings.*

The great composers of classical music, Mozart, Beethoven, Chopin, etc. – lived in this world a long time ago, but their music is still loved by so many people. Many other things that we recognize as aspects of culture – food, clothing, philosophical beliefs, religious customs, and the geographical boundaries of countries – seem to change over time. However, even though musical forms and styles also change with time, the music that these masters wrote is immortal. It is my belief that the greatest of music transcends its own form, and the constellation of musical elements of which it is comprised. It then achieves its greatness by the way in which it 'moves' us. In my view, this is the closest approach to a true 'Universal' in music – the way in which truly great music moves us. It is the nature of music that it deeply touches human beings – it is a fundamental, universal aspect of human nature, human mind and the human spirit.

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